Lake States Pear Thrips and Introduced Basswood Thrips survey: Project Summary

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The Pear Thrips, Taeniothrips inconsequens has caused heavy defoliation to maples in the eastern states. It was found in Southwestern Wisconsin in 1989. Prior to 1990 it had not been found in Minnesota, Iowa, Illinois or the Upper Peninsula of Michigan although its presence was suspected.

The Introduced Basswood Thrips, Thrips calceratus, has defoliated basswood in Michigan, Minnesota and Wisconsin for more than ten years. Prior to 1990 it had not been found in Iowa, Illinois, Southeastern Wisconsin or Southeastern Minnesota although its presence was expected.

The objective of this project was to determine the distribution of the pear thrips and introduced basswoood thrips in Wisconsin and document the presence of these species in the surrounding states.

Field survey methods

Both species of thrips overwinter as adults in the soil. Emergence in the spring takes place as the buds of the host trees open. Introduced basswood thrips are often found feeding on the succulent tissue inside bud scales very shortly after the scales have parted. Pear thrips are often found in the sugar maple flowers before the foliage buds have opened and later on the young developing foliage.

Sample collection - Bud samples were collected twice from each plot at two-week or three-week intervals. The first was collected in mid May; the second was collected shortly before full leaf expansion in late May to Late June.

Buds were collected within arms reach from the ground where possible. Within each plot, three expanding buds were collected from each of five trees and placed in 80% ethanol.

In northern Wisconsin, sugar maples in sugar bushes that had previously been examined for symptoms of decline were sampled for pear thrips. Eleven plots were selected in the southern half of Wisconsin. Three locations from each surrounding state were sampled. Some were collected by Wisconsin DNR personnel; some were collected by local personnel and mailed.

During field sampling an occasional "non host" tree species was

sampled.

Laboratory Methods

The three authors were trained to identify both species of thrips as well as the native basswood thrips by Dr. Ken Raffa, University of Wisconsin, Department of Entomology. The first author developed a handout to aid in the identification of the three thrip species (attached).

Bud samples were examined for adult pear thrips and introduced basswood thrips. The presence of both species was recorded.

Results and Discussion

The attached table and two maps summarize the results.

Pear thrips were found scattered widely in Wisconsin and in neighboring areas of Iowa and the Upper Peninsula. The presence of pear thrips in a plot was usually revealed by a single specimen; the population levels were extremely low on the foliage. Absence of pear thrips in a sample, therefore, does not necessarily negate the presence in the general area of the plot. Because of the widely scattered distribution revealed by the map, we believe that pear thrips is present throughout Wisconsin and much of Michigan, Minnesota, Iowa and Northern Illinois.

The introduced basswood thrips is also widely distributed in Wisconsin and surrounding states. Some samples contained hundreds of specimens. It was found in many of the basswoods sampled as well as on ash, aspen, ironwood, hickory and birch.

WISCONSIN DNR
FOREST PEST MANAGEMENT
02-Nov-90

BASSWOOD & PEAR THRIPS SURVEY LOCATIONS & STATUS, 1990

STATE	COUNTY	LEGAL DESCR.	HOST SPECIES*		
			Sugar Maple	Basswood	Other^
Illinois	Jo Daviess	T28N R4E S4	BT		
Illinois	Lake	T45N R9E S28		BT	
Illinois	Winnebago	T45N R2E S27	BT	BT	BT,Irn
Iowa	Allamakee	T96N R3W S27		BT,PT	
Iowa	Clayton	T91N R2W S11	PT	BT	BT,BHic
Iowa	Dubuque	T89N R2E S5 NW NW	PT	BT	BT,Ash
Iowa	Jackson	T86N R4E S13			
Michigan	Gogebic	T44N R46W S11			
Michigan	Iron	T42N R37W S11	PT	BT	
Michigan	Ontonagon	T45N R39W S34	PT	BT,PT	
Minnesota	Carlton	T48N R16W S24		BT	
Minnesota	Carlton	T49N R18W S16		BT	
Minnesota	St. Louis	T50N R19W S2		BT	
Minnesota	Winona	O.L. Kipp State Park		BT	
Missouri	Boone	?			
Missouri	Boone	?			
Missouri	Boone	?			
Missouri	Pulaski	?			
Missouri	Pulaski	?			
Wisconsin	Ashland	T41N R3W S3	BT		
Wisconsin	Ashland	T41N R4W S15 NE SW		BT	
Wisconsin	Barron	T35N R13W S13			
Wisconsin	Bayfield	T43N RBW S11 SE SW		BT	
Wisconsin	Bayfield	T43N R9W S4	BT		
Wisconsin	Bayfield	T45N R7W S34 NW NE		BT,PT	
Wisconsin	Bayfield	T50N R4W S10 SW SW	BT	BT	
Wisconsin	Bayfield	T56N R4W S9	PT		
Wisconsin	Burnett	T37N R14W S3 NW NW			
Wisconsin	Chippewa	T29N R6W S19 NW NE	BT	BT	
Wisconsin	Chippewa	T32N R7W S?		PT	
Wisconsin	Clark	T28N R1W S2 NE SW	BT	BT	
Wisconsin	Clark	T28N R6W S2			
Wisconsin	Dane	T7N R9E S28		BT	
Wisconsin	Dodge	T13N R17E S33			
Wisconsin	Dodge	T9N R15E S36	BT,PT		
Wisconsin	Door	T28N R27E S2 SE NE	PT		
Wisconsin	Door	T30N R27E S30 SE SW			BT,Brch
Wisconsin	Door	T31N R27E S15		BT	
Wisconsin	Douglas	T45N R14W S19 NE&SENW	BT	BT	
Wisconsin	Florence	T39N R17E S5 NW SE	PT		
Wisconsin	Forest	T40N R13E S2 NW NW			
Wisconsin	Grant	T7N R4W S31	BT,PT		BT,BHic
Wisconsin	Green	T3N R9E S31	PT	BT	
Wisconsin	Iowa	T6N R2E S13		BT	
Wisconsin	Iowa	T8N R2E S8 NW SW			BT,Ch,Irn
Wisconsin	Iron	T46N R1E S15		BT	
Wisconsin	Jefferson	T6N R16E S15	BT,PT		BT,Irn
Wisconsin	Juneau	T14N R3E S32 SW SW		BT	
Wisconsin	Juneau	T20N R3E S12 SW SW			
Wisconsin	Langlade	T32N R11E S24 NE SW	PT		BT,Brch
Wisconsin	Langlade	T33N R12E S28 SE SE	BT,PT		BT,Irn
Wisconsin	Lincoln	T32N RBE S32 NW NE	BT,PT	BT	
Wisconsin	Lincoln	T34N R6E S25 NW SW	PT	BT	
Wisconsin	Manitowoc	T21N R22E S13 SW SE	BT,PT	BT	BT,Bch,Ch
Wisconsin	Marathon	T28N R7E S9 NW SW	BT,PT	BT	BT,Ash

Wisconsin	Marinette	T35N R17E S14 NW NW				
Wisconsin	Marinette	T35N R21E S27				
Wisconsin	Monroe	T16N R2W S14 NW NW			BT	
Wisconsin	Oconto	T32N R16E S25 NE SW		BT		
Wisconsin	Oneida	T35N R10E S31 SE NW		BT		
Wisconsin	Pepin	T25N R14W S17		BT		
Wisconsin	Polk	T37N R15W S35 SE NW				
Wisconsin	Price	T39N R2W S29 NE NE				
Wisconsin	Richland	T11N R1E S17				
Wisconsin	Rusk	T35N R9W S24 NE&SW NW		BT	BT	
Wisconsin	Rusk	T36N R6W S3 SW SW		BT	BT	
Wisconsin	Rusk	T36N R8W S20 NW NE			BT	
Wisconsin	Sauk	T9N R5E S23				
Wisconsin	Sawyer	T39N R7W S16		BT,PT		PT,Ash
Wisconsin	Sawyer	T41N R8W S28 SE SW			BT	
Wisconsin	Shawano	T27N R13E S14 SE NW		PT		BT,Ash
Wisconsin	Shawano	T29N R11E S4				
Wisconsin	Taylor	T33N R1E S25				
Wisconsin	Vilas	T41N R6E S36 NE SW				BT,As
Wisconsin	Washburn	T37N R10W S21 SE&SWSE		BT	BT	
Wisconsin	Washington	T10N R18E S24		PT	BT	BT,Ch
Wisconsin	Waukesha	T5N R17E S29			BT	
Wisconsin	Wood	T22N R2E S12 NW NW				

* BT= basswood thrips present, PT= pear thrips present
^ Other species abbreviations: Ash=Ash, As=Aspen, Bch=Beech, BHic=Bitternut Hickory, Brch=Birch, Ch=Cherry, Irn=Ironwood

Note: All sites listed were collected from, some of which had no occurrences of thrips.

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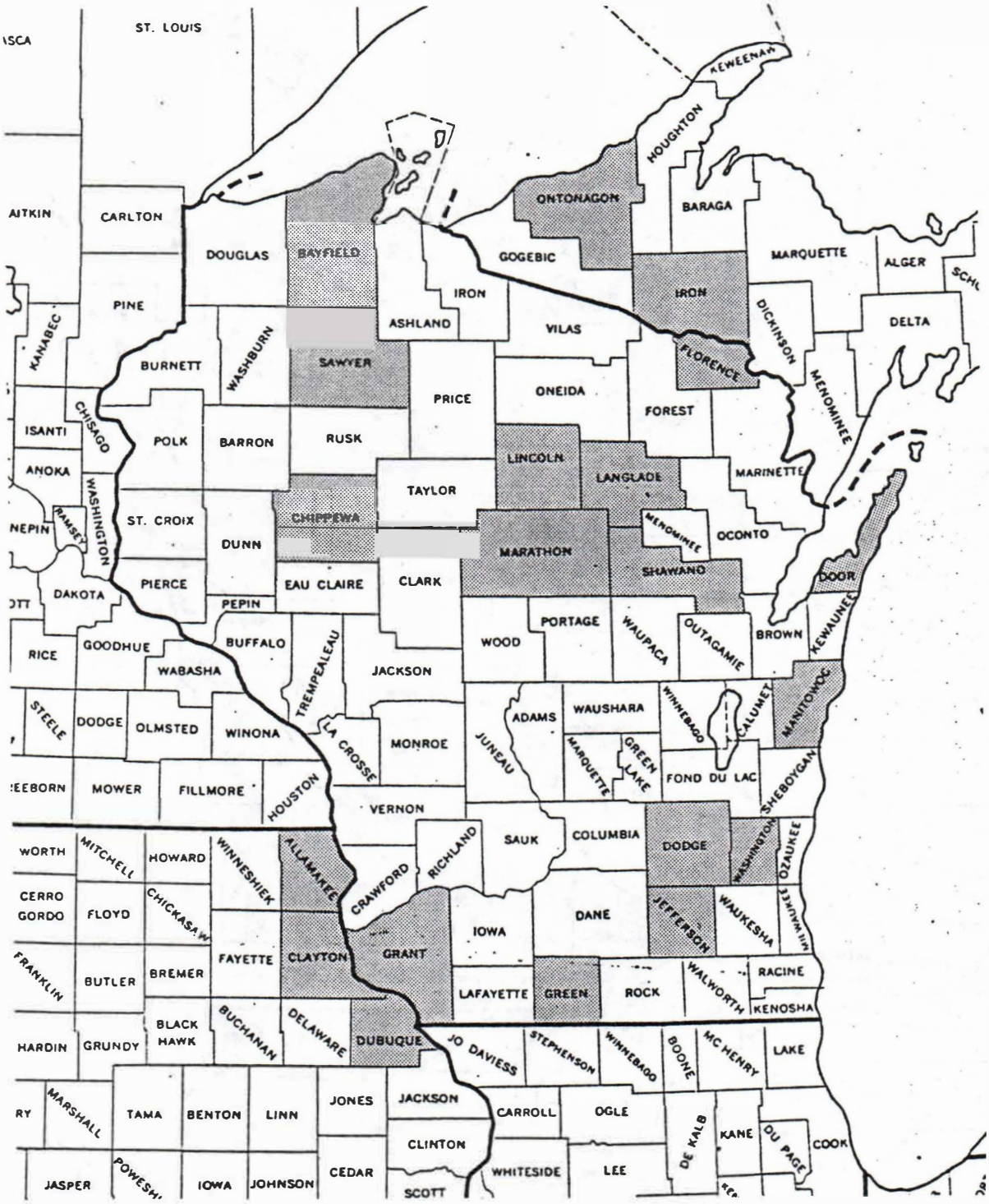
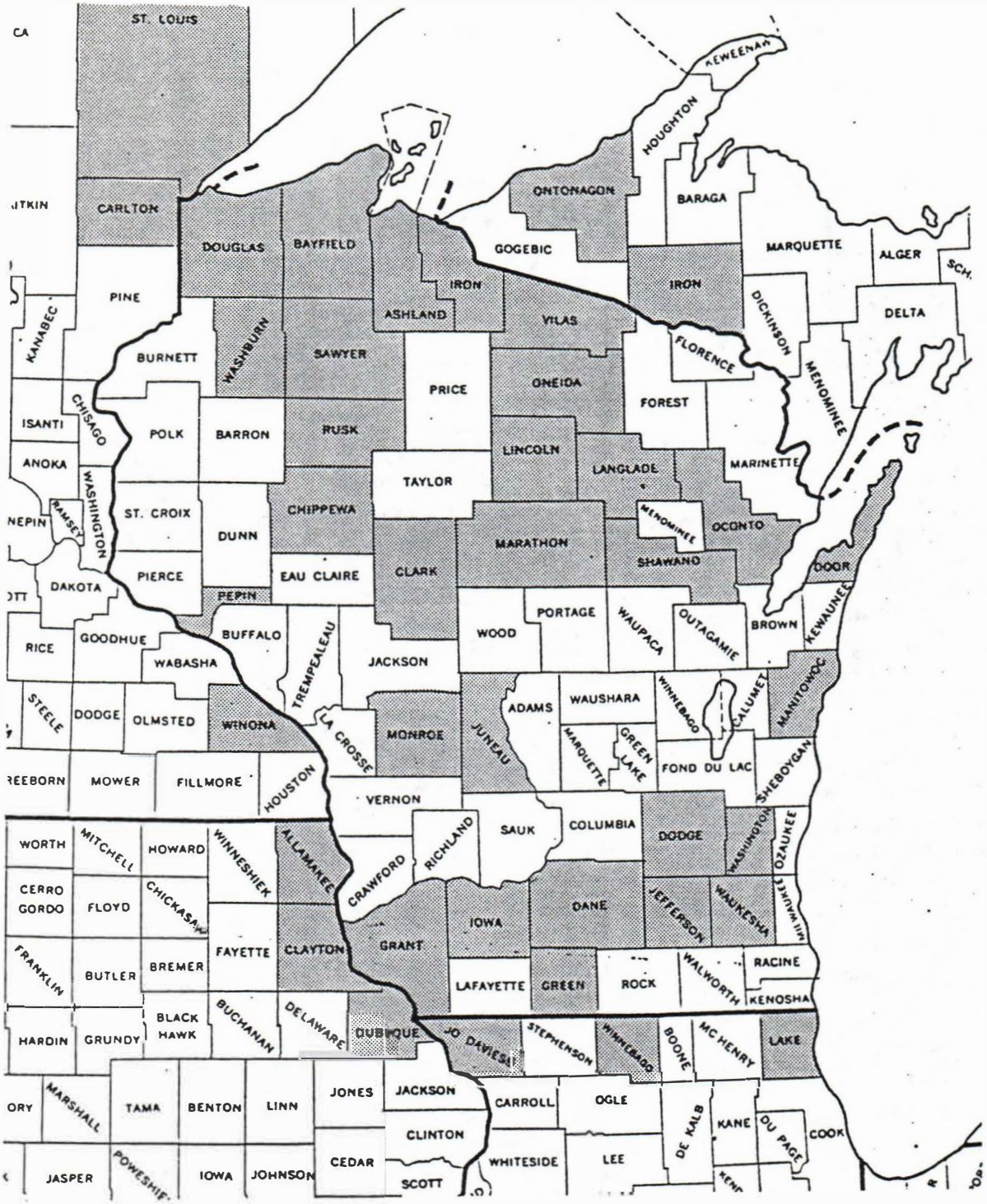
KNOWN OCCURRENCE OF PEAR THRIPS 1990



KNOWN OCCURRENCE OF BASSWOOD THRIPS 1990



DISTINGUISHING CHARACTERISTICS OF PEAR THRIPS,
INTRODUCED BASSWOOD THRIPS, AND NATIVE BASSWOOD THRIPS.

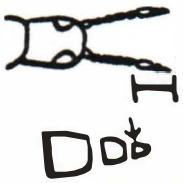
By Mark A. Guthmiller, Wisconsin DNR, Forest Pest Management

September 1990

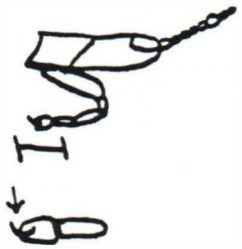
Pear Thrips, Taeniothrips inconsequens

Adult (winged)

ANTENNA STRUCTURE
Segment distal to swollen sixth segment has an extra suture. Eight total segments.

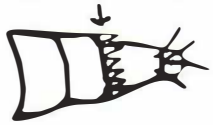


FORE TARSAL CLAW
Fore tarsal claw projecting at apex.



Larva (wingless)*

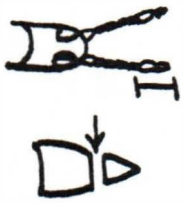
COMB STRUCTURE
Comb structure, posterior to eighth abdominal segment, has 7-8 large tooth-like projections. Six can be counted from dorsal view.



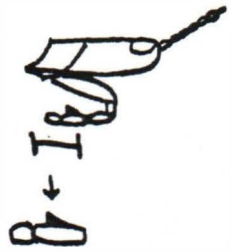
Introduced Basswood Thrips, Thrips calceratus

Adult (winged)

ANTENNA STRUCTURE
Segment distal to swollen sixth segment has no suture. Seven total segments.



FORE TARSAL CLAW
Fore tarsal claw projecting before apex.



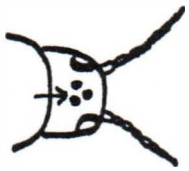
Larva (wingless)*

COMB STRUCTURE
Comb structure, posterior to eighth abdominal segment, has 17-18 small tooth-like projections. Twelve can be counted from dorsal view.

Native Basswood Thrips, Sericothrips tiliae

Adult (winged)

Identified from above species by white-colored body with wings and three red ocelli between eyes.



Larva (wingless)

Identified from above species by wide head. Head is wider than long.

*Early instars of larva cannot be identified.